

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Application No. : 09/915,032 Confirmation No. 8090
Applicant : Donald R. Sidwell
Filed : July 26, 2001
Title: : FLEXIBLE WALL MATERIAL FOR USE
IN AN INFLATABLE STRUCTURE
TC/A.U. : 1771 —
Examiner : Ula C. Ruddock
Docket No. : SW-00777
Customer No. : 29694

APPEAL BRIEF

Mail Stop Appeal Brief - Patents
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

April 27, 2004

Sir:

Appellant hereby appeals the final rejection of the captioned case set forth in the Office Action dated August 27, 2003 and maintained in the Advisory Action dated January 15, 2004. A Notice of Appeal was mailed to the Patent Office on February 27, 2004. Appellant has timely submitted this Appeal Brief.

REAL PARTY IN INTEREST

The real party in interest is Lockheed Martin Corporation, the assignee of the captioned application.

RELATED APPEALS AND INTERFERENCES

There are no related appeals or interferences that are believed to directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

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STATUS OF CLAIMS

Claims 1-5 and 11-14 are pending in the application.

STATUS OF AMENDMENTS

There are no outstanding amendments.

SUMMARY OF THE INVENTION

The invention provides a helium impervious material useful for flexible pressurized containers, such as gas bags for lighter than air vehicles. Not only is the material helium impervious, it is also exceptionally strong. The claimed material includes at least two plies of cloth comprising fibers within a specific denier range and having specific compositions, weaves and orientations. By controlling the recited fiber characteristics, Appellant has produced an unexpectedly improved helium impervious material for flexible pressurized containers.

ISSUE

Whether Claims 1-5 and 11-14 are properly rejected under 35 U.S.C. § 103(a) over Tanaka et al. '491 in view of Coombs '136.

GROUPING OF CLAIMS

Claims 1, 2, 4, 12 and 13 stand or fall alone.

Claims 3, 5, 11 and 14 stand or fall with Claim 1 from which they depend.

ARGUMENT

The 35 U.S.C. § 103(a) Rejection is Improper and Should Be Reversed

Claim 1

Claim 1 recites a helium impervious material for a wall of a flexible pressurized container comprising at least two plies of cloth, said cloth having a weight of 150 to 450 g/m², said cloth comprising fiber having a denier generally between 180 and

280 and the fill of the individual plies at 90 degrees to each other, said fibers of said cloth selected from the group consisting of extended chain polyethylene polymer in a rip stop weave architecture and a thermotropic liquid crystalline polymer in a 2x2 basket weave architecture. Such a helium impervious material having the combination of features recited in Claim 1 is not taught or suggested by the prior art of record.

Claims 1-5 and 11-14 stand rejected under 35 U.S.C. §103(a) as allegedly being unpatentable over Tanaka et al. '491 in view of Coombs '136. According to the Examiner, Tanaka et al. '491 discloses the claimed invention except for teaching that the cloth is a rip stop weave architecture. The Examiner relies upon Coombs '136 as a teaching of a protective garment in a rip stop weave structure. According to the Examiner, it would have been obvious to one skilled in the art to have used Coombs' rip stop method of weaving on the woven cloth of Tanaka et al., motivated by the desire to obtain a cloth that is both light weight but yet has high strength. Appellant submits that this rejection is erroneous and should be reversed.

Tanaka et al. '491 discloses a water-resistant, high-strength laminate useful as sailcloth for board sailing. Coombs '136 relates to a fabric laminate for a vapor permeable protective garment. Neither Tanaka et al. '491 nor Coombs '136 disclose or suggest a hydrogen impervious material as presently claimed. The references further fail to teach or suggest the combined fiber characteristics recited in Claim 1.

It is submitted that Tanaka et al. '491 and Coombs '136 cannot properly be combined. One skilled in the art seeking to modify the sailcloth material of Tanaka et al. '491 would not look to the vapor permeable garment material of Coombs '136 for possible modifications. Moreover, Coombs '136 teaches away from the presently claimed hydrogen impervious material by disclosing a cloth that is specifically designed to form a vapor permeable moisture barrier.

Even if the teachings of Tanaka et al. '491 and Coombs '136 could properly be combined, the combination would not yield the invention recited in Claim 1, since neither Tanaka et al. '491 nor Coombs '136 disclose or suggest a material that is impervious to helium. Appellant traverses the statement in the final Office Action that:

because Tanaka et al. comprises the same materials as required by Applicant, the product of Tanaka et al. would naturally be helium impervious.

Tanaka et al. '491 does not comprise the same materials having the fiber characteristics as specifically recited in Claim 1. Furthermore, it is submitted that the material of Tanaka et al. '491 is not helium impervious. The sailcloth material of Tanaka et al. '491 does not need to be helium impervious to function for its intended sailcloth purpose. Moreover, Tanaka et al. '491 explicitly specifies that the material is water resistant and possesses high strength, high modulus, transparency, lightness in weight, good handling and resistance to light (see column 1, lines 53-58). Nowhere does Tanaka et al. '491 teach or suggest that the material is helium impervious. Those skilled in the art, recognizing that the material of Tanaka et al. '491 is used as a sailcloth material, would understand that the material of Tanaka et al. '491 is not helium impervious, as presently claimed.

Coombs '136 does not remedy the deficiencies of Tanaka et al. '491. In fact, Coombs '136 teaches away from the presently claimed helium impervious material by requiring the disclosed material to be vapor permeable.

Therefore, Tanaka et al. '491 and Coombs '136 fail to render the invention recited in Claim 1 prima facie obvious.

Dependent Claim 2

Dependent Claim 2 recites that the plies are joined together by a thermoplastic polyurethane elastomer resin. No such elastomer resin is taught or suggested by Tanaka et al. '491 or Coombs '136. The Examiner states that Tanaka et al. '491 discloses a biaxially oriented polyester film adhered to at least one surface of the base cloth, the polyester film being composed of a polyester such as polyethylene terephthalate (citing column 4, lines 12-20 of Tanaka et al. '491). The Examiner further states that the adhesive layer which bonds the base cloth and polyester film can be a polyurethane resin (citing column 4, lines 49-59 of Tanaka et al. '491). Although Tanaka et al. '491 discloses that a polyester film may be adhered to at least one surface of the

base cloth, no teaching or suggestion is provided that two plies of cloth can be joined together by a thermoplastic polyurethane elastomer resin, as recited in Claim 2. Claim 2 therefore further distinguishes over the applied references.

Dependent Claim 4

Dependent Claim 4 recites that the plies are joined together by a polyester terephthalate film bonded to the outer side of said material. No such bonded film is taught or suggested by Tanaka et al. '491 or Coombs '136. Although Tanaka et al. '491 discloses that a polyester terephthalate film may be adhered to at least one surface of the base cloth, no teaching or suggestion is provided that two plies of cloth may be joined together by a polyester terephthalate film bonded to the outer side of the material, as recited in Claim 4. Claim 4 is therefore further patentable over the applied references.

Dependent Claim 12

Dependent Claim 12 recites that the fibers comprise a thermotropic liquid crystalline polymer in a 2x2 basket weave architecture, wherein the material has an ultimate tensile strength of at least 800 lbs/inch width. The combination of fiber composition, weave architecture and strength recited in Claim 12 is not taught or suggested by either Tanaka et al. '491 or Coombs '136. Claim 12 is therefore patentable thereover.

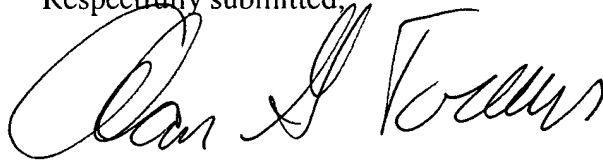
Dependent Claim 13

Dependent Claim 13 recites that the fibers comprise extended chain polyethylene polymer in a rip stop weave architecture, wherein the material has an ultimate tensile strength of at least 600 lbs/inch width. The combination of fiber composition, weave architecture and strength recited in Claim 13 is not taught or suggested by either Tanaka et al. '491 or Coombs '136. Claim 13 is therefore patentable thereover.

SUMMARY

For all of the reasons given above, Appellant respectfully submits that the rejection of Claims 1-5 and 11-14 under 35 U.S.C. § 103(a) over Tanaka et al. '491 in view of Coombs '136 is improper and should be reversed. Accordingly, it is respectfully requested that the case is in condition for allowance, and that the case be remanded to the Examiner for appropriate action.

Respectfully submitted,

A handwritten signature in black ink, appearing to read "Alan G. Towner". The signature is fluid and cursive, with the first name "Alan" being more prominent than the last name "Towner".

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APPENDIX

1. A helium impervious material for a wall of a flexible pressurized container comprising at least two plies of cloth, said cloth having a weight of 150 to 450 g/m², said cloth comprising fiber having a denier generally between 180 and 280 and the fill of the individual plies at 90 degrees to each other, said fibers of said cloth selected from the group consisting of extended chain polyethylene polymer in a rip stop weave architecture and a thermotropic liquid crystalline polymer in a 2x2 basket weave architecture.
2. The material as set forth in claim 1, wherein said plies are joined together by a thermoplastic polyurethane elastomer resin.
3. The material as set forth in claim 1, wherein said cloth has a weight of 159 to 478 g/m² and said weave comprises 58 by 58 yarns/inch.
4. The material as set forth in claim 2, wherein said plies are joined together by a polyester terephthalate film bonded to the outer side of said material.
5. The material as set forth in claim 1, wherein the denier is between 180 and 215.
11. The material as set forth in claim 1, wherein the weave comprises 56 x 56 yarns/inch.
12. The material as set forth in claim 1, wherein the fibers comprise the thermotropic liquid crystalline polymer in a 2x2 basket weave architecture and wherein the material has an ultimate tensile strength of at least 800 lbs/inch width.
13. The material as set forth in claim 1, wherein the fibers comprise the extended chain polyethylene polymer in a rip stop weave architecture and wherein the material has an ultimate tensile strength of at least 600 lbs/inch width.
14. The material as set forth in claim 1, having a permeability of less than 1 liter/m²/day/atm of helium.



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PTO/SB/21 (02-04)

Approved for use through 07/31/2006. OMB 0651-0031

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TRANSMITTAL FORM

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Total Number of Pages in This Submission

Application Number	09/915,032
Filing Date	July 26, 2001
First Named Inventor	Donald R. Sidwell
Art Unit	1771
Examiner Name	Ula C. Ruddock
Attorney Docket Number	SW-00777

ENCLOSURES (Check all that apply)

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| <input checked="" type="checkbox"/> Fee Transmittal Form
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<input type="checkbox"/> Affidavits/declaration(s)
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Remarks

SIGNATURE OF APPLICANT, ATTORNEY, OR AGENT

Firm or Individual name	Alan G. Towner Pietragallo, Bosick & Gordon
Signature	
Date	April 27, 2004

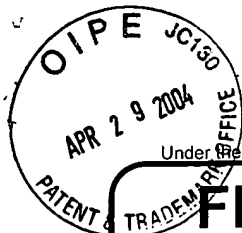
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FEE TRANSMITTAL for FY 2004

Effective 10/01/2003. Patent fees are subject to annual revision.

☐ Applicant claims small entity status. See 37 CFR 1.27

TOTAL AMOUNT OF PAYMENT (\$) 330.00

Complete if Known

Application Number	09/915,032
Filing Date	July 26, 2001
First Named Inventor	Donald R. Sidwell
Examiner Name	Ula C. Ruddock
Art Unit	1771
Attorney Docket No.	SW-00777

METHOD OF PAYMENT (check all that apply)

☐ Check ☐ Credit card ☐ Money Order ☐ Other ☐ None

☒ Deposit Account:

Deposit
Account
Number
Deposit
Account
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500859

Pietragallo

The Director is authorized to: (check all that apply)

☒ Charge fee(s) indicated below ☒ Credit any overpayments

☒ Charge any additional fee(s) or any underpayment of fee(s)

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FEE CALCULATION

1. BASIC FILING FEE

Large Entity Fee Code (\$)	Small Entity Fee Code (\$)	Fee Description	Fee Paid
1001 770	2001 385	Utility filing fee	
1002 340	2002 170	Design filing fee	
1003 530	2003 265	Plant filing fee	
1004 770	2004 385	Reissue filing fee	
1005 160	2005 80	Provisional filing fee	

SUBTOTAL (1) (\$) 0

2. EXTRA CLAIM FEES FOR UTILITY AND REISSUE

	Extra Claims	Fee from below	Fee Paid
Total Claims	-20** =	X	
Independent Claims	-3** =	X	
Multiple Dependent			

Large Entity Fee Code (\$)	Small Entity Fee Code (\$)	Fee Description
1202 18	2202 9	Claims in excess of 20
1201 86	2201 43	Independent claims in excess of 3
1203 290	2203 145	Multiple dependent claim, if not paid
1204 86	2204 43	** Reissue independent claims over original patent
1205 18	2205 9	** Reissue claims in excess of 20 and over original patent

SUBTOTAL (2) (\$) 0

**or number previously paid, if greater; For Reissues, see above

FEE CALCULATION (continued)

3. ADDITIONAL FEES

Large Entity Small Entity

Fee Code (\$)	Fee Code (\$)	Fee Description	Fee Paid
1051 130	2051 65	Surcharge - late filing fee or oath	
1052 50	2052 25	Surcharge - late provisional filing fee or cover sheet	
1053 130	1053 130	Non-English specification	
1812 2,520	1812 2,520	For filing a request for <i>ex parte</i> reexamination	
1804 920*	1804 920*	Requesting publication of SIR prior to Examiner action	
1805 1,840*	1805 1,840*	Requesting publication of SIR after Examiner action	
1251 110	2251 55	Extension for reply within first month	
1252 420	2252 210	Extension for reply within second month	
1253 950	2253 475	Extension for reply within third month	
1254 1,480	2254 740	Extension for reply within fourth month	
1255 2,010	2255 1,005	Extension for reply within fifth month	
1401 330	2401 165	Notice of Appeal	
1402 330	2402 165	Filing a brief in support of an appeal	330
1403 290	2403 145	Request for oral hearing	
1451 1,510	1451 1,510	Petition to institute a public use proceeding	
1452 110	2452 55	Petition to revive - unavoidable	
1453 1,330	2453 665	Petition to revive - unintentional	
1501 1,330	2501 665	Utility issue fee (or reissue)	
1502 480	2502 240	Design issue fee	
1503 640	2503 320	Plant issue fee	
1460 130	1460 130	Petitions to the Commissioner	
1807 50	1807 50	Processing fee under 37 CFR 1.17(q)	
1806 180	1806 180	Submission of Information Disclosure Stmt	
8021 40	8021 40	Recording each patent assignment per property (times number of properties)	
1809 770	2809 385	Filing a submission after final rejection (37 CFR 1.129(a))	
1810 770	2810 385	For each additional invention to be examined (37 CFR 1.129(b))	
1801 770	2801 385	Request for Continued Examination (RCE)	
1802 900	1802 900	Request for expedited examination of a design application	

Other fee (specify)

*Reduced by Basic Filing Fee Paid

SUBTOTAL (3) (\$) 330

SUBMITTED BY

(Complete if applicable)

Name (Print/Type)	Alan G. Towner	Registration No. (Attorney/Agent)	32,949	Telephone	412.263.4340
Signature		Date	April 27, 2004		

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